## DARPA-BAA-12-54

## **ARC**

## **Frequently Asked Questions**

August 2, 2012

- Q46. Has there been a change to when proposals are due for the ARC BAA?
- A46. There has been an amendment to the Adaptive Radar Countermeasures (ARC) solicitation, DARPA-BAA-12-54, which has been posted at the Federal Business Opportunities website, <a href="https://www.fbo.gov/index?s=opportunity&mode=form&id=c401b679e33fb19a08aa53">https://www.fbo.gov/index?s=opportunity&mode=form&id=c401b679e33fb19a08aa53</a> <a href="da3157271a&tab=core&cview=1">da3157271a&tab=core&cview=1</a>. Because DARPA wants to ensure that proposers are given ample time to prepare their proposals for the ARC solicitation, the due date (Final Closing Date) has been extended by two weeks. Proposals must now be submitted by September 12, 2012, at 12:00 noon (ET). Per the instructions in the BAA, which was amended July 27, 2012, any proposals received after September 12, 2012, 12:00 noon (ET), will be considered late and will not be reviewed.
- Q45. How may we receive a copy of the revised DD Form 254, allowing access to Non-SCI information?
- A45. A request can be submitted via the ARC BAA email box, <a href="ARC@darpa.mil">ARC@darpa.mil</a>. The request should contain the requestor's name, company name, email address, fax number and CAGE CODE.
- Q44. How much funding is available for TA1 and TA2?
- A44. As stated in the BAA, the overall funding available for TA1 and TA2 across the entire program is anticipated to be \$70M. A breakdown of funding by technical area or by phase will not be provided.
- Q43. How much funding is available for each phase?
- A43. Breakdown of funding by technical area or by phase will not be provided.

- Q42. Is there a range of funding considered for TA2 awards?
- A42. Breakdown of funding by technical area or by phase will not be provided.
- Q41. How many awards will be made for TA2?
- A41. The number of awards depends on the quality of the proposals and available funding. Multiple awards are anticipated as stated in the BAA.
- Q40. Will there be down-selections for Phase 2 and 3?
- A40. Multiple awards in both TA1 and TA2 are anticipated in Phase 1A. The exercising of options to continue work in phases 1B, 2, and 3 will depend on technical performance, the availability of funding, and will be at the Governments discretion.
- Q39. Does a TA1 prime have to supply algorithms for a baseline system?
- A39. Yes. This is specifically addressed in the BAA.
- Q38. If you are a subcontractor on a TA1 proposal, does that prevent you from proposing to TA2?
- A38. No. You can propose to both technical areas of the program, but you can only be awarded for one. See BAA page 21.
- Q37. Can a company and its subsidiaries bid ARC as independent entities?
- A37. No. A company, including its subsidiaries, is considered one organization. A company and its subsidiaries may submit independent proposals to TA1 and TA2, but are not eligible to be awarded contracts in both technical areas. It is up to the Government to determine which technical area, if any, to award to organizations submitting proposals under TA1 and TA2.
- Q36. Can a TA1 prime supply independent test facilities as a subcontract to a TA2 performer in Phase 1?
- A36. No. Performers can only work in one Technical Area.

- Q35. How are TA2 algorithms matched with TA1 contractors? Are TA2 solutions integrated with all TA1 contractors (if more than 1)?
- A35. The government will not define who works with whom, but will look at the overall strength of the system(s) as the program progresses. It is up to the TA1 and TA2 performers to integrate their technologies in a manner that best achieves the program goals. Open exchange at technical interchange meetings and program reviews will be highly encouraged to facilitate this process.
- Q34. Should a TA1 proposer include costs associated with supporting TA2 algorithm development?
- A34. A TA1 proposer should include costs for integrating TA2 algorithms into their system during Phase 2 and 3. The Government will continue to fund the TA2 developers in Phase 2 and Phase 3. TA2 proposers should include costs for integrating TA2 algorithms into TA1 systems in phases 2 and 3.
- Q33. Is there a preferred transition platform?
- A33. There are no preferred platforms identified in the BAA. TA1 proposals should identify potential platforms/systems that ARC technology can be integrated into as part of their transition plans.
- Q32. Can you expand on the transition approach expected after Phase 3?
- A32. No further information will be provided beyond what is in the BAA. Proposals should identify potential transition opportunities.
- Q31. Should proposals involve a Special Program Office (SPO) or Program of Record (POR)? Is it acceptable to involve DoD organizations as part of Phase 1 and Phase 2?
- A31. It is not expected nor desired for a SPO or POR to be involved in proposals. Identification of SPOs or PORs where ARC technology may be transitioned as part of an overall transition plan is appropriate. DARPA plans to engage with appropriate DoD organizations throughout the program to encourage and assist in technology transition. Performers requiring involvement of DoD organizations or the use of Government test facilities as part of their development plans should clearly state their assumptions on GFE and GFI.
- Q30. How is "unknown" defined.
- A30. "Unknown" refers to a radar which has waveforms and behaviors that either are not in the current EW library or are ambiguous.

- Q29. What is the expected response time for achieving closed-loop operation?
- A29. The goal is to operate in tactically-relevant timescales. Proposals should include information regarding the expected response time of the proposed approach and the set of missions for which that response time is relevant.
- Q28. Can we have access/direction to the intelligence community during the proposal writing period?
- A28. No. DARPA will not provide any access to intelligence sources during the proposal period.
- Q27. What frequency range are we going to look at?
- A27. ARC is focused on advanced software algorithms that are not constrained to particular frequencies. It is up to proposers to define the appropriate frequency ranges that their system/approach will operate over based on mission needs, hardware constraints, and transition plans. Transition platforms and systems and their associated hardware constraints, or upgrade paths, should be considered when proposing hardware for use in phases 2 and 3.
- Q26. Are we addressing (Electronic Counter-Countermeasures) ECCM techniques used by a radar?
- A26. Yes. ARC should attempt to learn and adapt to ECCM techniques. Please see the paragraph on Countermeasure Effectiveness Assessment in the Program Scope section of the BAA.
- Q25. Since ARC is to leverage the hardware and functionality of existing systems, will technical and functional data for these systems be made available to bidders?
- A25. No. Information regarding hardware and functionality of existing systems will not be provided during the proposal period. During the program, TA1 performers are expected to collaborate with and provide sufficient system information, including technical and functional data to the TA2 performers to enable integration of TA2 algorithms into the overall TA1 system.
- Q24. Is there a preferred existing hardware framework on which to base or host the software system?
- A24. No.

- Q23. Does the Phase 2, Hardware In the Loop (HIL) system include RF components or is it purely digital?
- A23. Proposers should propose a Phase 2, HIL system that meets the objectives defined in the BAA. It is anticipated that HIL systems will include RF components.
- Q22. During phases 1 and 2, is TA1 focused on a specific end system, or should development be more generic and fitted to a specific system in Phase 3?
- A22. The development process is up to the performers, but should provide a balance between encouraging advanced R&D and demonstrating potential transition opportunities.
- Q21. How much hardware development is allowed to support the Phase 3 system (i.e., processing system to analyze electronic support data and synthesize new techniques)?
- A21. TA1 performers need to make use of hardware for their Phase 2 and 3 systems, however new hardware R&D is out of scope. For example, the design and fabrication of a signal processor board comprised of COTS components is within scope since it does not involve new R&D, but the design and fabrication of new antennas or analog to digital converters out of scope. Transition platforms and systems and their associated hardware constraints, or upgrade paths, should be considered when proposing hardware for use in phases 2 and 3.
- Q20. What level of existing electronic attack system modifications are in scope?
- A20. The focus of the ARC R&D should be on algorithms and techniques for learning and countering unknown radars, rather than improving the performance through hardware modifications (e.g., improving the dynamic range of an A/D, the geo-location accuracy, or the linearity of a power amplifier, etc.). Hardware modifications required to support ARC operation (e.g., fabrication and integration of COTS based processor boards) are within scope. Significant hardware modifications can affect transition opportunities, so performers should consider this in their proposed approaches.
- Q19. Will there be guidance on the proposers' assumptions on radar warning receiver and jammer capabilities, as well as the RF environment (e.g., pulse density)?
- A19. No. Proposers should state their assumption on system capabilities and the RF environmental conditions (e.g., pulse density), over which their proposed approach is designed to operate.

- Q18. For testing purposes, will the Government provide logged data from real collects?
- A18. If needed, proposers should state their assumptions for such government furnished information in their proposals.
- Q17. How should a proposer cost the use of Government test equipment or facilities?
- A17. Proposers should include every estimated cost they expect to directly incur to integrate their solution with Government test equipment. Range and test facility usage costs will be handled by the Government. Proposers should include in their cost volume a list of pricing ground rules and assumptions regarding costs for Government test equipment/facilities, stating what costs they assume will be paid for by DARPA and what costs are included in the offer.
- Q16. How should a proposer discuss use of Government Furnished Equipment (GFE)? Should the proposer get a commitment from the Government entity for submission with the proposal?
- A16. Proposals should clearly state any assumptions regarding the use of GFE as part of their development and testing approach. Commitment from the Government entity providing the GFE may be included, but is not required, prior to submission of the proposal.
- Q15. How much emphasis do you expect performers to put on EW resource optimization in countering multiple threats?
- A15. As stated in the Program Scope section of the BAA, it is desired that the ARC system be capable of countering multiple threats. It is anticipated that, as an initial step, performers will demonstrate the ability to counter a single adaptive radar before demonstrating multi-threat operation. Sufficient emphasis should be placed on EW resource optimization algorithms and system architectures to ensure that the ARC system is capable of countering multiple threats.
- Q14. Is Phase 3 hardware expected to be SWAP-optimized/airworthy or proof-of-concept form to fly on surrogate aircraft?
- A14. As stated in the BAA, the Phase 3 prototype will be tested via a series of flight test on a performer-provided surrogate aircraft to demonstrate the innovative capabilities of an ARC system. TA1 performers should propose appropriate hardware in Phase 3 to meet this objective, and also have a realistic plan for transitioning their technology into existing or planned platforms. Also, as stated in the BAA, development and testing approaches that leverage existing hardware development platforms are highly encouraged.

- Q13. Do proposals need to address issues related to achieving computational efficiency (i.e., low-power hardware or other SWAP considerations)?
- A13. Solutions should be capable of being ported to or implemented on existing or anticipated system hardware resources. The Phase 3 system must be a working prototype suitable for flight tests. Issues related to computational efficiency should be addressed to the extent that they are related to meeting the objectives of the program defined in the BAA, including the transition of ARC technology into existing or planned platforms.
- Q12. Do maneuvering and changing mission parameters fall under valid countermeasures, or should countermeasures be limited to electronic systems?
- A12. ARC is focused on electronic countermeasures.
- Q11. Is there a preference for immediately successful countermeasures or optimal information gathering to support subsequent countermeasures on later missions?
- A11. The primary focus of the ARC program is developing advanced algorithms that enable real-time closed loop countermeasures against adaptive radars. As stated in the Program Scope section of the BAA, the ARC system should also be capable of storing and downloading knowledge and countermeasures learned during a mission for use in post mission analysis. A valid extension of this desired capability is the use of that learned information for subsequent countermeasures on later missions.
- Q10. What are the criteria that the government team will use to validate contractor-developed threat models and threat radar emulators?
- A10. Contractor developed threat models and emulators will be validated through open technical interchange meetings and review of threat model documentation and performance data.
- Q9. The BAA mentions TS/SCI information exchanges for TA1 performers. Will DARPA issue a TS/SCI DD254 to awardees?
- A9. Yes, as needed.

- Q8. Will DARPA support performer/proposer requests to other Government agencies for release of data from classified programs?
- A8. Proposers choosing to submit a classified proposal from other classified sources must first receive permission from the respective original classification authority (OCA) to use this information in replying to this BAA. Applicable classification guide(s) must be submitted to ensure the proposal is protected at the appropriate classification level.

  During the program progression, DARPA may request release of classified information from other agencies for use by the performers if needed.
- Q7. Can university subcontractors work on TA2 algorithms if they are provided with unclassified canonical problems? Is it possible to work with uncleared subcontractors?
- A7. Yes to both, provided there is adherence to all security directives in the ARC SCG and BAA. The proposal must describe the mitigation plan for using uncleared resources. Note that any subcontractor, who will be handling classified information, must have approved facilities and capabilities in place prior to contract award (mitigation plan must be approved by the PSO).
- Q6. Under what constraints may university partners publish ARC-funded developments?
- A6. All potential public release publication of ARC-funded developments must be unclassified and approved by DARPA's DISTAR public release process.
- Q5. What is the composition of the Government Team and the Threat Working Group (TWG)?
- A5. The Government Team will consist of representatives from the services, DoD agencies and FFRDCs, who are experts in radar and radar countermeasures. The TWG will consist of representatives from the Government Team, plus representatives from the TA1 and TA2 performers.
- Q4. Will techniques, IP, etc. from the BLADE program be made available?
- A4. No.
- Q3. Other than communications vs. radar . . . how does this differ from the BLADE program?
- A3. Other than their common use of RF, communications systems (being addressed by the BLADE program) and radar systems (being addressed by the ARC program) are fundamentally different in their waveforms, signal processing, CONOPS and countermeasures.

- Q2. Many of the "highly innovative" algorithms for signal recognition and filtering of background make use of things specifically excluded. For example, phase-space pattern recognition algorithms make use of geolocation or at least synthesis of hyperbolic localization contours into the solutions. Is this a conflict? Does it mean that assessors will not take the time to understand these algorithms?
- A2. Development of signal analysis and characterization algorithms that make use of geolocation data or other signals obtained from antenna arrays typically employed in electronic counter measure systems are not excluded, provided the techniques contribute to the ARC goals. However, specific development of geolocation algorithms for the sake of improving their performance is not desired. Please see page 7, paragraph 3, of the BAA for further guidance regarding the use of enabling technologies such as geo-location.
- Q1. You say no hardware development, but one of the reasons that threats can be challenging to identify is that they have sophisticated hardware. How can you keep up with the threats if you can't keep up with the hardware?
- A1. ARC is focused on developing the ability to learn about and counter unknown threats using sophisticated algorithms and processing techniques. ARC's goal is not to build the next generation radar ECM system, but to integrate new technology into existing or planned systems. Proposals may project hardware capabilities (e.g., processing hardware capabilities) that will be available in phases 2 and 3 based on natural hardware evolution. The intent however is not to expend limited resources on new advanced hardware development. Programs other than ARC are focused on research and development that will advance the state of the art in hardware. Transition platforms and systems and their associated hardware constraints, or upgrade paths, should also be considered when proposing hardware for use in phases 2 and 3.